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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,699	08/11/2003	James Allen Charnley JR.	W012 P00898-US1	1698
3017 7590 09/15/2008 BARLOW, JOSEPHS & HOLMES, LTD. 101 DYER STREET 5TH FLOOR PROVIDENCE, RI 02903				
EXAMINER FU, HAO				
ART UNIT 3696		PAPER NUMBER		
MAIL DATE 09/15/2008		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/604,699

Applicant(s)

CHARNLEY, JAMES ALLEN

Examiner

HAO FU

Art Unit

3696

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Response to Remark

In response to the remarks filed on 05/15/2008, the examiner finds the applicant's argument persuasive. The prior arts rely on algorithmic methods to select the best combination of assets. The present invention is different in that it compares all the possible allocation combinations. The examiner points out some concerns of the present invention and provides a list of suggestions to advance the prosecution process.

Claim 2 is canceled by the applicant.

Objection to the Specification

The specification is objected because in both the summary of invention and detailed description, the applicant does not tie the method to an apparatus or system, i.e. a super computer and a database. Since the applicant mentions that one of the objects of the invention is to employ a database approach to selecting investment (see paragraph 0035 of the specification), the examiner allows the applicant to add the apparatus or system which performs the method of the invention without rising new matter issue.

Claim Rejection – USC 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 1-17 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Based on Supreme Court precedent and recent Federal Circuit decisions, the Office's guidance to examiners is that a 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. If neither of these requirements is met by the claim, the method is not a patent eligible process under 101 and should be rejected as being directed to non-statutory subject matter.

The independent claims 1 and 8 are both method claim which are not tied to another statutory class. In this sense, the claimed methods could be performed totally mentally. Therefore, claims 1 and 8 are directed to non-statutory subject matter. The examiner believes that applicant's method requires a super computer and a database to conduct all the necessary calculation. The examiner advises the applicant to add an apparatus or system which performs the steps to the claim language. Claims 2-7 depend on claim 1, and claims 9-17 depend on claim 8. The dependent claims do not fix the deficiency of the independent claims. As such, claims 2-7 and 9-17 are rejected for the same reason.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

As per claim 1, applicant claims a method for constructing a population of asset allocation alternatives to generate comparative statistics of investment performance for a whole-population of available asset allocation alternatives over a plurality of analysis periods, comprising the steps of:

- Klein et al. (US Patent No.: 6,907,403) teaches classifying stocks into business sectors by providing investment performance data for a plurality of securities (see column 2, line 33-41, also see column 1, line 55-56, which discloses that the step is repeated for each of a plurality of securities);

- grouping these securities on the basis of this performance data into one of a plurality of market sectors inclusive of all markets available to an investor (see abstract, and column 1, line 46-67);

- determining a series of periodic investment returns of each of the securities (see column 2, line 33-41, the prior art teaches using historical data for the value of the asset, it is commonly known in the art that historical data comprises of a series of periodic return; see column 3, line 2-11 and line 42-45 for disclosure of a series of periodic investment returns; also see column 1, line 55-56, which discloses that the step is repeated for each of a plurality of securities);

- generating a series of the average of periodic investment returns for the population of securities within each of the plurality of market sectors (see column 2, line 64 through column 3, line 13, and column 3, line 42-60; prior art teaches retrieving historical data of the assets over an extended time interval; historical data specific to the asset, in the case that the asset is a share of stock or is related to the value, includes periodic return; the prior art further teaches the historical data of an asset can be normalized with respect to data for either similar stocks (e.g. stocks in the same sector) or the market as a whole).

However, Klein fails to teach constructing a population of asset allocation alternatives to generate comparative statistics of investment performance for a whole-population of available asset allocation alternatives over a plurality of analysis periods, comprising the steps of:

- determining a minimum allocation percentage increment for each of the market sectors;

- determining allocation alternatives from the application of multiples of this minimum allocation percentage increment for each of the market sectors;

- creating a population of the all possible allocation alternatives that can be determined from the application of all multiples of this minimum allocation percentage increment for all determined market sectors;

- calculating a series of weighted-average periodic returns for each of the allocation alternatives within that population; and

- calculating analysis-period measures of investment performance for the population of all possible allocation alternatives and the series of weighted-average periodic returns.

In light of Figure 4 of applicant's submitted drawing, the above procedures describes a brute force application, in which the portfolio is constructed by comparing the weighted-average periodic return of all possible combinations of market sectors in various percentages.

In this sense, Wall et al. (Wall, Larry D, Reichert, Alan K, Mohanty, Sunil, Deregulation and the opportunities for commercial bank diversification, Economic Review – Federal Reserve Bank of Atlanta, Sep/Oct 1993, Vol. 78, Iss. 5; pg. 1, 25 pgs) teaches an example of combining two sectors in various percentages, in which the allocation of one sector ranges from 0 to almost 100 percent of the total assets (see page 3, 3rd full paragraph, page 5, 2nd full paragraph, and page 6, 1st paragraph).

However, the problem with the Wall reference is that the comparative statistical analysis is done on merely the resulting returns of combinations of bank company holding assets and nonbank industry assets, for the purpose of determining whether merging with nonbank firms would provide higher return and lower risk for the bank than one restricted to traditional banking activities. As such, Wall fails to teach determining a minimum allocation percentage increment for each of the market sectors, and creating a population of all possible allocation alternatives that can be determined from the application of all multiples of this minimum allocation percentage increment for all determined market sectors. The objective of such analysis is to determine whether commercial bank can diversify their activities by merging with nonbank firms to provide higher return and lower risk. The present application is different in that its purpose is to determine the best combination of allocation of securities, such as stocks and bonds, for an investor.

Regarding to the concept of brute force application, the examiner found two more references related to this concept, namely Dantzig (George Dantzig, Linear Programing, Operations Research, Jan/Feb 2002, Vol. 50, Iss. 1; pg. 42, 7 pgs) and Taylor (Robert E Taylor, A practical approach to computerizing optimization problems, Industrial Management, Jul/Aug 1997, Vol. 39, Iss. 4; pg. 20, 4 pgs). Both the Dantzig reference and the Taylor reference discuss brute force application in statistic in general, but both the reference does not suggest such method can be applied to investment allocation. Both reference disclose that if we can try all combinations and compare the solutions, we would simply select the "best" solution (see page 2 of Dantzig and page 2 of Taylor). This is the general concept which inspires the development of present invention.

However, neither the Dantzig nor the Taylor reference teaches the specific steps of:
determining a minimum allocation percentage increment for each of the market sectors;

determining allocation alternatives from the application of multiples of this minimum allocation percentage increment for each of the market sectors;

creating a population of the all possible allocation alternatives that can be determined from the application of all multiples of this minimum allocation percentage increment for all determined market sectors;

calculating a series of weighted-average periodic returns for each of the allocation alternatives within that population; and

calculating analysis-period measures of investment performance for the population of all possible allocation alternatives and the series of weighted-average periodic returns.

Further more, the Dantzig and Taylor reference seem to teach away the use of brute force method, because "there is no way to determine what is a "better" solution; and there are too many combinations to try" (see page 2 of Dantzig and page 2 of Taylor). Therefore, the examiner concludes that even though the concept of brute force application is not new, the application of such method in constructing investment portfolio is novel, and the applicant has overcome the difficulties of the prior arts by using the steps of:

- determining a minimum allocation percentage increment for each of the market sectors;

- determining allocation alternatives from the application of multiples of this minimum allocation percentage increment for each of the market sectors;

- creating a population of the all possible allocation alternatives that can be determined from the application of all multiples of this minimum allocation percentage increment for all determined market sectors.

In such way, the number of possible combination alternatives becomes finite and possible for a super computer to calculate.

Notes: The examiner strongly advises the applicant to elaborate the step of grouping the securities into one of the sector by adding "having uniquely similar levels and patterns of investment risk". The examiner strongly advises the applicant to add the limitation of claim 3 to all independent claims to prevent any possible reexamination issue which might arise from the Wall reference. In addition, the examiner strongly advises the applicant to add "wherein the performance data is publicly traded stocks and bond" from claim 9 to all independent claims to further distinguish the present invention from the Wall reference. The examiner strongly advises the applicant to add the limitation "wherein an analysis-period population is comprised of 10,626 allocation alternatives" to all the independent claims. The reason, which is very important, is that if the number of possible combination alternatives is not great enough, the

present invention could be done mentally and such mental process would be natural to one of ordinary skill in the art. For example, if there are only two sectors, and perfect incremental is set to 50%, there will only be three possible combination alternatives, i.e. 100% sector 1 and 0% sector 2, 50% sector 1 and 50% sector 2, and 0% sector 1 and 100% sector 2. As such, it will only require mental process to determine which combination results the best return.

Therefore, it is important and necessary to add the limitation of "wherein an analysis-period population is comprised of 10,626 allocation alternatives" to all independent claims to avoid this problem. Finally, the examiner further suggests adding the step of "determining a plurality of allocation alternatives which reside along the efficiency-line". The examiner believes that adding this feature will further distinguish the present invention from prior arts and general common sense, and such feature is supported by paragraph 0052 of applicant's specification. Failure of accepting the examiner's advice might results in future rejection based on the above reasoning and raises reexamination issue even after applicant is granted the patent.

As per claim 8, applicant claims a method of comparative statistics of investment performance for whole populations of asset allocation strategies, comprising the steps of:

acquiring performance data for a population of similar investments inclusive of all securities markets available to an investor;

calculating an average of these periodic returns and a measurement of a variance of the periodic returns around the average returns for each investment;

grouping the investments into categories of investments having uniquely similar levels and patterns of investment risk, known as asset classes;

calculating an average of the periodic returns for the population of securities within each asset class;

constructing a set of all possible asset allocation strategies, inclusive of an entire range of allocation strategies that can be derived from a population of securities, from the combination of all multiples of the minimum allocation percentage increment from each asset class;

calculating a series of periodic returns generated by each allocation alternative by multiplying the asset-class average periodic return by the percent of portfolio assets allocated to that asset class for each allocation alternative;

calculating the performance statistics for each allocation alternative for each analysis-period;

calculating population-comparison statistics for each analysis-period;

generating categories of allocation alternatives within each analysis-period population based on similar population-comparison statistics, and

normalizing population-comparison statistics by recalculating the statistics to a standard scale in terms of deviation of the measure from a population average and comparing the statistics across a time-series of analysis-period populations.

Claim 8 recites a method similar to claim 1, and thus the same comments of claim 1 apply to claim 8.

Notes: The examiner strongly advises the applicant to elaborate the step of grouping the securities into one of the sector by adding "having uniquely similar levels and patterns of investment risk". The examiner strongly advises the applicant to add the limitation of claim 3 to all independent claims to prevent any possible reexamination issue which might arise from the Wall reference. In addition, the examiner strongly advises the applicant to add "wherein the performance data is publicly traded stocks and bond" from claim 9 to all

independent claims to further distinguish the present invention from the Wall reference. The examiner strongly advises the applicant to add the limitation "wherein an analysis-period population is comprised of 10,626 allocation alternatives" to all the independent claims. The reason, which is very important, is that if the number of possible combination alternatives is not great enough, the present invention could be done mentally and such mental process would be natural to one of ordinary skill in the art. For example, if there are only two sectors, and perfect incremental is set to 50%, there will only be three possible combination alternatives, i.e. 100% sector 1 and 0% sector 2, 50% sector 1 and 50% sector 2, and 0% sector 1 and 100% sector 2. As such, it will only require mental process to determine which combination results the best return. Therefore, it is important and necessary to add the limitation of "wherein an analysis-period population is comprised of 10,626 allocation alternatives" to all independent claims to avoid this problem. Finally, the examiner further suggests adding the step of "determining a plurality of allocation alternatives which reside along the efficiency-line". The examiner believes that adding this feature will further distinguish the present invention from prior arts and general common sense, and such feature is supported by paragraph 0052 of applicant's specification. Failure of accepting the examiner's advice might results in future rejection based on the above reasoning and raises reexamination issue even after applicant is granted the patent.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAO FU whose telephone number is (571)270-3441. The examiner can normally be reached on Mon-Fri/Mon-Thurs 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dixon can be reached on (571) 272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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